

The image features the Cal Poly Pomona logo on the left, consisting of the text "CalPoly" in blue and "Pomona" in green. To the right of the logo is a large, stylized arrow pointing right, composed of several overlapping triangles in shades of blue, green, and yellow. The background is white with some light blue geometric shapes in the corners.

CalPoly
Pomona

High Performance Computing 'HPC'

Alex Harwood

AVP, Advanced Computing and Chief Technology Officer

Agenda

- HPC Overview
- Current State
 - Hardware
 - Software
- Research Computing Faculty Survey
- Next Steps
- Timeline

HPC Overview

HPC supported and implemented 2019

1. Initially implemented in 2019
2. Upgraded 2020
 1. Grant funded
3. Grant requested (unfunded)
4. Survey of Faculty December 2023

Current State - Hardware

- **Compute**
 - SLURM (job scheduler and cluster management system)
 - 4 GPU nodes (each node has two GPUs installed)
 - 2 x Nvidia Tesla P100
 - 2 x Intel 2.1GHz CPU
 - 128G RAM
 - 20 compute nodes
 - 2 x Intel 2.1GHz CPU
 - 128G RAM
 - 3 FAT nodes (requested from Bioinformatics and Math)
 - 2 x Intel 2.1GHz CPU
 - 512G RAM
- **Storage**
 - 700 terabytes NAS
 - Network-attached storage
 - File dedicated

Current State - Software

- Python3
- Anaconda
- Cuda
- openmpi
- openACC
- GCC
- OpenCV
- Pandas
- Tensorflow
- Pycuda
- Pytorch
- Quantum_expresso
- Ruby

Research Computing Faculty Survey

66 Respondents (as of 12/21/23)

- 16 respondents use the existing CPP HPC infrastructure
- 35 indicated they do not use the existing HPC
- 15 were not sure if they use the HPC
- 42 indicate they would like to learn more about the HPC
- 4 indicated that the current solution meet needs
- 11 indicated that the current solution does not meet their needs
- 39 would like to participate in requirements gathering

Research Computing Faculty Survey

Written comments

- I am not aware of HPC on campus, I use another University's HPC
- Need more GPU/multi GPU settings
 - 4 comments about GPU resources
- Ability to use Docker Containers
- Improve transfer rates and storage
- Improved user experience for students and additional resources and support
- Web based access
- Lacking support

Next Steps

- **Schedule stakeholder meetings**
- **Hire/Train Student Assistants**
- **Gather requirements from stakeholders**
- **Engage vendors for quotes**
- **Review options with key stakeholders**
- **Procurement**
- **Implementation**

Time Line

- **Jan – Feb**
 - Schedule stakeholder meetings
 - Gather requirements from stakeholders
 - Hire and train student assistants
- **Feb – March**
 - Engage vendors for quotes
 - Review options with key stakeholders
- **March - April**
 - Procurement
- **May – July**
 - Implementation